

## **Benefit-Cost Analysis of Michigan Autism Insurance Coverage**

James N. Boudier, MPA, and Jon Hockenyos

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**Executive Summary**

- The majority of children with autism who receive appropriate intervention and treatment experience marked improvement – 47% recover “typical” function, 40% make significant improvement, and the remaining 13% make little progress.
- There are significant lifetime costs associated with autism related to direct medical expenses, direct non-medical expenses, and indirect expenses (lost productivity). These children and their lifetime costs can be divided into four distinct groups (“cohorts”):
  - Cohort 1: Children who receive treatment and recover to “typical” function = \$603,448
  - Cohort 2: Children who receive treatment and make significant improvement = \$1,926,790
  - Cohort 3: Children who receive treatment and make little progress = \$3,697,979
  - Cohort 4: Children who receive no treatment = \$3,439,065
- The blended weighted average cost of Cohorts 1, 2, and 3 (children who receive treatment) is \$1,535,074. This blended cost compared with the cost of Cohort 4 (children who receive no treatment) results in an overall benefit-cost ratio of 2.24.
- Although the Centers for Disease Control estimates community prevalence of autism at 1 in 150 people, the actual rate of individuals who are treated is closer to 1 in 500. The assumptions in this study range from 1 in 260 to 1 in 165.
- The mid-point of the treated prevalence range indicates the 7,294 children will be helped by the passage of Michigan Autism Legislation. The difference between the lifetime costs of children who receive no intervention (Cohort 4) and the blended weighted average of Cohorts 1-3 is \$1,903,991 per child. Multiplying these two figures together creates total social benefits of \$13.9 billion.
- Increased insurance premium costs associated with greater coverage under Michigan Autism Legislation (diagnosis through age nine) were estimated at 0.44% (low scenario), 0.72% (baseline scenario), and 1.08% (high scenario). This translates into about the cost of a child’s meal at a fast food restaurant an individual.
- The experience of other states and analyses from national actuarial firms confirms that the likely cost of insuring the treatment of children with autism is relatively low, and is consistently reported to be at or below 1%.

**Section 1: Long Term Considerations**

Aside from moral and emotional concerns, policymakers are justified in asking what are the measurable longer-term costs and benefits associated with appropriate intervention to treat autism. Perhaps the most fundamental issue is related to outcomes – i.e., do children who receive appropriate treatment get better, and, if so, what does “getting better” actually entail? The results summarized in Chasson, et al. suggest that “getting better” is not only possible but likely and that the vast majority of children who receive appropriate intervention experience marked improvement.<sup>1</sup> In particular, the findings of Chasson and others indicate that approximately 47% of the children recover “typical” function; an additional 40% make “significant” improvement, although do not they do not reach “typical” function, and the remaining 13% make little progress. Clearly, this work provides strong justification for intervening as soon as possible.

A second question concerns the lifetime costs associated with autism. In April 2007, Ganz set forth his findings in describing “the age-specific and lifetime incremental societal costs of autism in the United States” (p. 343).<sup>2</sup> Ganz determined that the “lifetime per capita incremental societal cost of autism is \$3.2 million” and that “[l]ost productivity and adult care are the largest components of costs” (p. 343). These figures were expressed in \$2003; using the national Consumer Price Index, the figure rises to \$3.7 million in \$2008.

Based on the extant literature demonstrating the efficacy of behavioral interventions, we believe that the “lifetime per capita incremental societal cost of autism” can be mitigated substantially by services included in Michigan Autism Legislation. In short, autism left untreated will result in unwelcome financial consequences for families with loved ones diagnosed with autism, public agencies, and society as a whole. The following outlines a methodology and findings that substantiate this claim.

*Overall Cost-Benefit*

Chasson and Ganz’s work can be adapted to calculate the overall cost benefit of appropriate intervention to treat autism. Ganz grouped costs into three broad categories: Direct Medical, Direct NonMedical, and Indirect. The items included in each category are as follows, along with the lifetime breakdown. Details as to the timing and level of annual costs are included in the Appendix.

**Direct Medical:**

- Physicians/dentists
- Pharmaceuticals
- Alternative therapies
- Behavioral interventions
- Emergency room/Hospital
- Home healthcare
- Travel

<sup>1</sup> Chasson, Gregory S., Harris, Gerald E., & Neely, Wendy J. (2007). “Cost Comparison of Early Intensive Behavioral Intervention and Special Education for Children with Autism.” *Journal of Child and Family Studies*. Vol 16, pp. 401-413.

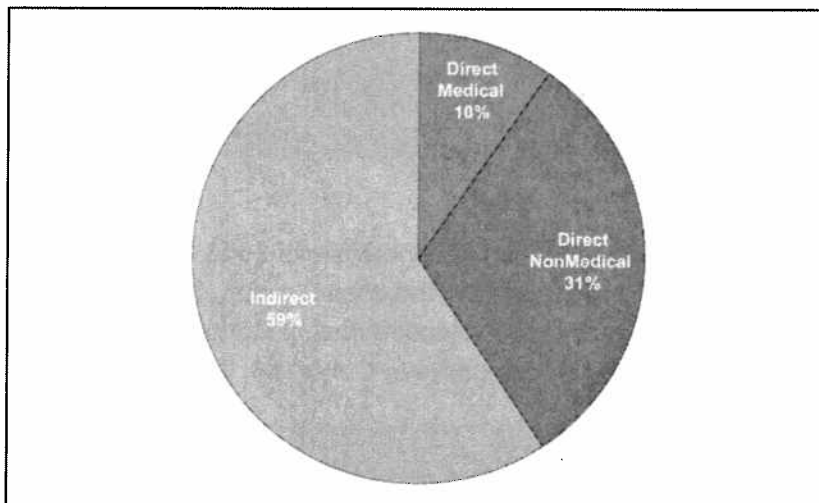
<sup>2</sup> Ganz, Michael L. (2007). “The Lifetime Incremental Societal Costs of Autism.” *Archives of Pediatric and Adolescent Medicine*. Vol. 161, Apr. 2007, pp. 343-349.

## Direct Non-Medical:

- Childcare
- Adultcare
- Respite Care
- Home Improvement
- Special Education
- Supported Work
- Other

## Indirect:

- Own lost productivity (wages)
- Caregiver/family lost productivity (wages)

**Figure 1: Distribution of Lifetime Costs Associated With Autism**

Source: Ganz, et al. and Boudier, et al.

The results from Chasson, et al. can be used to identify four cohorts within the overall autism designation: 1) those who recover to "Typical" status; 2) those who recover to "Improved" status; 3) those who see "Little Change" as a result of intervention; and 4) those who receive "No Intervention." These data from Ganz can be compared to the lifetime costs for each of these cohorts in turn. In essence, the cost of the direct medical interventions is the same for cohorts 1-3, although several interventions (such as behavioral interventions) have been removed for cohort 4. The figure below shows the specific assumptions for each variable. A percent figure is shown in relation to the data outlined from Ganz in the Appendix; a figure of "<22" indicates 100% of Ganz until the age that precedes that figure (in this case, age 21). The impact is most pronounced in the timing, duration, and level of nonmedical and productivity (i.e., earnings) estimates, both for the child and his/her parents.

**Table 1: Variable Adjustment Factors**

	<i>Typical</i>	<i>Improved</i>	<i>Little Change</i>	<i>No Intervention</i>
	<b>Cohort 1</b>	<b>Cohort 2</b>	<b>Cohort 3</b>	<b>Cohort 4</b>
<b>Direct Medical</b>				
Physician/Dental	<22	<22	100%	100%
Drugs	<22	<22	100%	100%
Alt Therapies	<22	<22	100%	0%
Behavioral Therapies	100%	100%	100%	0%
Emergency/Hospital	<22	<22	100%	100%
Home Health	<22	<22	100%	0%
Travel	<22	<22	100%	0%
<b>Direct Non-Medical</b>				
Childcare	<8	<13	100%	100%
Adultcare	0%	0%	100%	100%
Respite Care	<8	<13	100%	100%
Home Improvement	<8	<13	100%	100%
Special Ed	<8	<13	100%	100%
Supported Work	0%	0%	100%	100%
Other	<8	<13	100%	100%
<b>Indirect</b>				
Own lost productivity	0%	at 50%	100%	100%
Other lost productivity	<8	at 75%	100%	100%

The results of this analysis are compelling. Cohort #1 had lifetime costs of \$603,448 (\$2008); Cohort #2 \$1,926,790; Cohort #3 \$3,697,979, and Cohort #4, the control group, \$3,439,065. Using the incidence percentages from Chasson, et al., the blended cost of Cohorts #1, #2, and #3 is \$1,535,074, creating a benefit-cost ratio of 2.24 as compared to Cohort #4, the control (No Intervention) group.

**Table 2: Variation in Lifetime Costs by Cohort**

	<i>Typical</i>	<i>Improved</i>	<i>Little Change</i>	<i>No Intervention</i>
	<b>Cohort 1</b>	<b>Cohort 2</b>	<b>Cohort 3</b>	<b>Cohort 4</b>
Lifetime Costs	\$603,448	\$1,926,790	\$3,697,979	\$3,439,065
Incidence	47%	40%	13%	
Blended Figure	\$283,621	\$770,716	\$480,737	\$1,545,074
<b>Net Gain</b>				<b>\$1,903,991</b>
<b>Benefit-Cost Ratio</b>				<b>2.24</b>

#### *Application to Michigan*

Estimates provided later in this report suggest that the number of children helped by Michigan Autism Legislation will range from 5,724 to 9,345. Using the mid-point of this range (7,294) yields a net benefit to society of \$13,887,711,845 (7,294 multiplied by the per capita net gain figure of \$1,903,991 above).

*Focus on Education*

Regarding the cost-benefit of intensive ABA services, two analyses, one completed in Pennsylvania and the other in Texas, examined the future cost savings to government units resulting from investment in intensive behavioral interventions for people with autism.

The first such work, completed by John W. Jacobson, James A. Mulick, and Gina Green in 1998, notes that an abundance of research demonstrates the efficacy of early, intensive behaviorally-based interventions to enable substantial numbers of children with autism to “attain intellectual, academic, communication, social, and daily living skills within the normal range” (p. 201).<sup>3</sup> Using representative costs from Pennsylvania, including costs for special educational and adult special needs services, they found that, “At varying rates of effectiveness and in constant dollars, this model estimates that cost savings range from \$187,000 to \$203,000 per child for ages 3-22 years, and from \$656,000 to \$1,082,000 per child for ages 3-55 years” (Jacobson, et al., p. 201).

More recently, Chasson, et al. compared the costs of early intensive behavioral intervention (“EIBI”) and special education for children with autism.<sup>4</sup> Alluding to recent comparison studies that strongly suggest that “eclectic” special education programs are materially ineffective for many children with autism, the authors note that the human cost of failing to provide EIBI services is considerable. Consistent with Jacobson’s et al.’s findings, Chasson et al. found that “the state of Texas would save \$208,500 per child across eighteen years of education with EIBI” (p. 401). It is important to note that, without treatment, persons with autism will grow to become adults dependent on publicly-funded services for their lifespan. As Chasson et al. put it, “By implementing EIBI with all children with autism, as a way to prevent the need for special education, the investment not only produces a sizeable savings after 18 years, but it maximizes the likelihood that most of these children will return a profit long after maturation” (p. 410). “The bottom line,” they write, “is that a simple change in policy could drastically improve functioning and quality of life for thousands of children with autism in Texas. (p. 412).

<sup>3</sup> Jacobson, John W., James A. Mulick, and Gina Green (1998). “Cost-Benefit Estimates for Early Intensive Behavioral Intervention for Young Children with Autism – General Model and Single State Case.” *Behavioral Interventions* 13, 201-226.

<sup>4</sup> Chasson, Gregory S., Harris, Gerald E., & Neely, Wendy J. (2007). “Cost Comparison of Early Intensive Behavioral Intervention and Special Education for Children with Autism.” *Journal of Child and Family Studies*, 16, 401-413.

## Section 2: Private Insurance Premium Rate Impact

### *Number of Eligible Beneficiaries of Autism Coverage in Michigan*

Our first task in estimating the likely cost of expanding the scope treatment to Michigan residents with autism is to determine how many people in Michigan are eligible for and likely to utilize the benefits mandated by the bill.

According to estimates provided by the U.S. Census Bureau, there are approximately 3,460,473 persons living in Michigan between the ages of 2 and 26 who could be eligible for the benefits under the House Bill 4476/4183.<sup>5</sup> It is also estimated that approximately 89.8% of children with special health care needs living in Michigan under the age of 18 are insured<sup>6</sup>. The number of persons living in Michigan between the ages of 2 and 26 who are insured, therefore, is approximately 3,107,505.

Based on information published by the Medical Expenditures Panel Survey ("MEPS"), 51.1% of private-sector enrollees working for business firms in Michigan are enrolled in self-insured plans (MEPS 2005 Report, p. 1).<sup>7</sup> The insurance exception to ERISA preemption (the "savings clause") states that nothing in ERISA "shall be construed to exempt or relieve any person from the law of any State which regulates insurance, banking, or securities."<sup>8</sup> In other words, under the savings clause, a state law that regulates insurance is "saved" from ERISA preemption. In addition to the "savings clause," the ERISA includes the "deemer" clause, which provides that an employee benefit plan covered by ERISA may not "be deemed to be an insurance company or other insurer ... or to be engaged in the business of insurance ... for purposes of any law of any State purporting to regulate insurance companies [or] insurance contracts."<sup>9</sup> In short, the effect of the deemer clause is that "self-funded ERISA plans are exempt from state regulation insofar as that regulation 'relates to' the plan."<sup>10</sup> Based on these and other decisions, a state attempt to regulate a nongovernmental self-funded plan would be preempted by ERISA.<sup>11</sup> The potential pool of beneficiaries between age 2 and 26, therefore, after accounting for ERISA preemption and the uninsured, is approximately 1,519,570.<sup>12</sup>

<sup>5</sup> U.S. Bureau of the Census, "Table DP-1. Profile of General Demographic Characteristics: 2006 Population Estimates."

<sup>6</sup> Health and Disability Working Group. "The Catalyst Center: Improving Financing of Care for Children and Youth with Special Health Care Needs." Boston University School of Public Health, Boston, MA (2007), p. 85.

<sup>7</sup> See Medical Expenditure Panel Survey Report

<[http://www.meps.ahrq.gov/mepsweb/data\\_stats/summ\\_tables/insr/state/series\\_2/2005/tiib2b1.pdf](http://www.meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/state/series_2/2005/tiib2b1.pdf)>

<sup>8</sup> 29 U.S.C. 1144(b)(2)(A).

<sup>9</sup> 29 U.S.C. 1144(b)(2)(B).

<sup>10</sup> *Daily v. Marriott Health Plan*, 415 F. 3d (8<sup>th</sup> Cir. 2005); *FMC Corp. v. Holliday*, 498 U.S. 52, 61, 112 L. Ed. 2d 356, 111 S. Ct. 403 (1990).

<sup>11</sup> See also *Metropolitan Life Insurance Company v. Massachusetts*, 471 U.S. 724, 105 S. Ct. 2380, 85 L. Ed. 2d (1985); *Kentucky Association of Health Plans v. Miller*, 538 U.S. 329, 123 S. Ct. 1471, 155 L. Ed. 2d 468 (2003); and *Prudential Ins. Co. of Am. V. Nat'l Park Med. Ctr., Inc.*, 413 F.3d 897, 912-913 (8<sup>th</sup> Cir. 2005).

<sup>12</sup> Please note, however, that legislation drafted by then-Senator Obama in 2008 and recently introduced in Washington D.C. by Senators Durbin, Casey, and Menendez, entitled the Autism Treatment Acceleration Act of 2009 (S. 819) includes provisions requiring self-funded ERISA plans to offer similar coverage to those included in HB 451.



*Treated Prevalence Rate of Children with Autism in Michigan*

Actuarial analyses and insurer criticisms of bills similar to the bill contemplated for Michigan often utilize the CDC's statistic on community prevalence in pricing such bills, notwithstanding actual treated prevalence rates within existing systems or present in the research record. Recently, the Commonwealth of Pennsylvania Insurance Department utilized the 1 in 150 statistic in deriving their estimated rate impact of approximately 1.1%, with regard to very similar legislation introduced in that state.

While the latter example reports an estimated rate impact that is very low, utilizing a 1 in 150 prevalence rate demonstrates a lack of understanding of the range of symptom severity exhibited by people with ASD, and thus overstates the number of persons with autism likely to require and seek significant clinical treatment or, at a minimum, presents an high-band estimate. Because symptom severity for people living with autism ranges from mild to severe, the assumed treated prevalence rate and per capita cost interact, so that assuming a treated prevalence rate equal to the CDC's reported community prevalence rate would have the effect of lowering the average per capita expenditure, as it would include a significant number of people with autism who are not likely to seek or require significant clinical treatment for the symptoms of their disorder.

Several examinations of health care utilization and expenditures associated with treating autism have been published in recent years that call into question the appropriateness of using epidemiological prevalence data to forecast the magnitude of health care utilization resulting from passage of House Bill 4476/4183. In 2007, Douglas L. Leslie and Andres Martin compiled data from the Thomson/Medstat MarketScan database, "which compiles claims information from private health insurance plans of large employers ... across the United States ... [with] covered individuals includ[ing] employees, their dependents, and early retirees" (Leslie, p. 351).<sup>13</sup> Leslie et al. note that the *treated prevalence* of autism in the claims database was 19.2 per 10,000 (*i.e.*, 1 in 520.83) (p. 352). Independently, Gregoral S. Liptak et al. obtained data from three national surveys and identified a treated prevalence of autism of 21 in 10,000 (*i.e.*, 1 in 476.19) (Liptak et al., p. 872).<sup>14</sup> Similarly, in a previous article, David S. Mandell et al. reported a treated prevalence rate of youth diagnosed with autism in Allegheny County, PA of 0.2% (*i.e.*, 1 in 500) (Mandell et al., p. 477).<sup>15</sup> More recently, Shimabukuro et al.'s examination of MarketScan® data found a treated prevalence rate of 1.9 per 1,000 (or approximately 1 in 526) (p. 549).<sup>16</sup> Most recently, the nationally recognized actuarial firm, Mercer, completed an evaluation of Maryland's proposed autism insurance mandate, which is substantively similar to HB 4476/4183, but has a \$50,000 annual cost cap.<sup>17</sup> Mercer included both treated prevalence rates and cost per treated child estimates broken down by age bands to establish low, mid, and high estimates of premium

<sup>13</sup> Leslie, Douglas L. and Andres Margin (2007) "Health Care Expenditures Associated with Autism Spectrum Disorders." *Archives of Pediatric and Adolescent Medicine*. Vol. 161, Apr. 2007, pp. 350-355.

<sup>14</sup> Liptak, Gregory S., Tami Stuart, and Peggy Auinger (2006). "Health Care Utilization and Expenditures for Children with Autism: Data from U.S. National Samples." *Journal of Autism and Developmental Disorders*. Vol. 36, pp. 871-879.

<sup>15</sup> Mandell, David S., Jun Cao, Richard Ittenbach, and Jennifer Pinto-Martin (2006). "Medicaid Expenditures for Children with Autistic Spectrum Disorders: 1994 to 1999." *Journal of Autism and Developmental Disorders*, Vol. 36, No. 4, pp. 475-485.

<sup>16</sup> Shimabukuro, Tom T., Scott D. Grosse, and Catherine Rice (2008). "Medical Expenditures for Children with an Autism Spectrum Disorder in a Privately Insured Population" *Journal of Autism and Developmental Disorders*, Vol. 38, No. 4, pp. 546-552.

<sup>17</sup> Mercer/Oliver Wyman (2008) *Annual Mandated Health Insurance Services Evaluation, Coverage for Autism Spectrum Disorder*, pp. 3-33.

impact, resulting in a mid-range estimate of 0.85%. This analysis replicates the methodology employed by Mercer in their review of similar legislation currently pending in the State of Maryland.

These findings are consistent with other medical conditions, which present with a treated prevalence rate much lower than the community prevalence rate. The consistency of these data suggest that the treated prevalence of autism is a better measure to apply to premium impact analyses because, unlike community prevalence data, which simply report the number of persons satisfying the diagnostic criteria for autism, treated prevalence accounts for those persons with autism actually seeking and consuming health care services related to their disorder.

#### *Assumptions*

While much of the data included in this analysis was derived from primary sources, some assumptions were necessary due to our inability to independently confirm certain data elements from primary sources or required statistical calculations to forecast future sums. These assumptions are set forth below.

- Using data provided by the Michigan Department of Insurance, adjusted for inflation, we estimate a premium base of \$14.3 billion in 2010.<sup>18</sup>
- Based on claims history of insurers in Michigan, we assumed an 87% Medical Loss Ratio ("MLR"), which is consistent with the 85% MLR, considered an industry standard. The MLR was used to convert cost effect to revenue requirement.<sup>19</sup>
- 48.9% of group health insurance plans offered by private firms in Michigan that are not subject to ERISA preemption remains an accurate figure, as reported by the MEPS for 2005 (cited above).
- In order to produce a conservative estimate, 100% of likely, increased costs attributable to services provided under HB 4476/4183 will be passed on to private insurance ratepayers participating in eligible plans (i.e., private insurers will choose not to absorb any additional costs).
- Calculations assume an adequate provider network is in place on the legislation's effective date to meet the demand for services.

#### *Cost Analysis*

The next step in our cost analysis is to establish the likely cost of covering these services and their potential rate effect. In the interest of providing a range of rate impact resulting from the coverage of services contemplated for Michigan's autism coverage, we have provided calculations based on a number of variables. We attempted to do so using credible data available to the general public. For your convenience, attached is a spreadsheet detailing the likely range of impact the covered services will have on private insurance ratepayers in Michigan (See Exhibit B attached).

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<sup>18</sup> Derived from Six-Year Rolling Average of data reported in 2001 through 2006 OFIS Annual Reports.

<sup>19</sup> Medical Loss Ratio calculated using 6-year Simple Average (2001 through 2006).

The most likely scenarios are derived in part from peer-reviewed research evaluating real-life data concerning the treated prevalence of autism and average expenditures per treated person with autism and prevalence rates assumed by Mercer in their actuarial estimate of increased costs associated with a similar bill pending in Maryland (cited above). Persons living with autism present with varied symptoms requiring differing levels of attention based on the severity of symptoms. The more severe symptoms requiring intensive behavioral health and other clinical interventions are not necessarily present in every person diagnosed with an Autistic Spectrum Disorder, especially when those less severely affected reach the school age. This is evidenced by the treated prevalence rates reported in Mandell et al. (2006), Leslie et al. (2007), Liptak et al. (2007), and Shimabukuru et al. (2008) noted and cited above, which consistently report a treated prevalence rate of approximately 1 in 500 (or 0.20%). One should expect, therefore, that actual utilization rates will track more closely along treated prevalence rates noted in the above mentioned reviews of actual health care utilization data than community prevalence rates reported by the CDC.

While we were unable to locate any Michigan-specific data on average treatment costs, the findings of the Mercer actuaries in Maryland are instructive. Relying on the research of Harvard economist Michael Ganz, Mercer recognized that the heaviest utilization of services would fall in the preschool years, and drop considerably as the child reaches school age and approaches adulthood. Mercer assumed a cost per treated child between the ages of 18 and 20 to be from \$2,525 to \$3,500, as the biggest cost drivers for adult services are vocational support and supported housing (i.e., non-medical expenses).<sup>20</sup>

Three possible expenditure scenarios are included in our cost analysis, establishing Low, Mid, and High Estimates, using the treated prevalence rates and cost per treated child estimates similar to those Mercer relied upon in Maryland. Overall, the treated prevalence rates for Low, Mid, and High estimates were 1:260, 1:210, and 1:165, respectively. While all of these estimates are higher than the 1:500 treated prevalence rates cited in the articles above, the availability of services covered by health insurance may result in increased utilization of covered services.

Table 3 below illustrates the likely utilization rates and cost per treated person by age band. Based on these assumptions, the likely percentage increase in premium costs attributable to expanding the age band for autism coverage as proposed by HB 4476/4183 falls in the 0.44% to 1.08% range, with a mid-range estimate of 0.72% (see attached Exhibit B attached for more detail).

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<sup>20</sup> Ganz, Michael L. (2007). "The Lifetime Incremental Societal Costs of Autism." *Archives of Pediatric and Adolescent Medicine*. Vol. 161, Apr. 2007, pp. 343-349.

Table 3: Treated Prevalence and Cost per Treated Person Assumptions for HB 4476/4183\*

Age Band	<b>Low Estimate</b>			
	# Children	ASD Treated Prevalence for Age Band (Total)	Cost per Treated Person	Incremental Increased \$ Cost
2 to 4	168,147	0.27%	\$30,000	\$13,619,930
5 to 9	291,651	0.35%	\$19,660	\$20,068,520
10 to 14	314,984	0.41%	\$6,758	\$8,727,501
15 to 19	327,545	0.41%	\$2,525	\$3,390,906
20 to 24	305,455	0.41%	\$2,525	\$3,162,223
25 to 26	111,788	0.41%	\$2,525	\$1,157,286
				<b>\$50,126,365</b>
			<b>Premium Increase % of Premium</b>	<b>0.44%</b>
Age Band	<b>Mid Estimate</b>			
	# Children	ASD Treated Prevalence for Age Band (Total)	Cost per Treated Person	Incremental Increased \$ Cost
2 to 4	168,147	0.35%	\$36,000	\$21,186,557
5 to 9	291,651	0.41%	\$26,200	\$31,329,174
10 to 14	314,984	0.53%	\$9,000	\$15,024,714
15 to 19	327,545	0.53%	\$3,500	\$6,075,953
20 to 24	305,455	0.53%	\$3,500	\$5,666,191
25 to 26	111,788	0.53%	\$3,500	\$2,073,669
				<b>\$81,356,257</b>
			<b>Premium Increase % of Premium</b>	<b>0.72%</b>
Age Band	<b>High Estimate</b>			
	# Children	ASD Treated Prevalence for Age Band (Total)	Cost per Treated Person	Incremental Increased \$ Cost
2 to 4	168,147	0.47%	\$40,000	\$31,611,688
5 to 9	291,651	0.54%	\$30,500	\$48,034,956
10 to 14	314,984	0.67%	\$12,000	\$25,324,676
15 to 19	327,545	0.67%	\$3,500	\$7,680,921
20 to 24	305,455	0.67%	\$3,500	\$7,162,920
25 to 26	111,788	0.67%	\$3,500	\$2,621,430
				<b>\$122,436,592</b>
			<b>Premium Increase % of Premium</b>	<b>1.08%</b>

\* **Note:** Treated prevalence and per capita cost assumptions are similar to those used by Mercer, consulting actuaries for the Maryland Health Care Commission.<sup>21</sup>

<sup>21</sup> Mercer (2008), *Annual Mandated Health Insurance Services Evaluation, Section 1, Coverage for Autism Spectrum Disorders*, prepared for the Maryland Health Care Commission, pp. 30-31.

The estimates set forth above assume that an adequate provider network will be in place during the first year of implementation. Unlike other states that have recently enacted similar legislation, (e.g., Pennsylvania and Florida), Michigan does not currently have a sufficient number of trained behavioral health professionals to meet the demand for services that will be eligible for private insurance reimbursement. The Behavior Analyst Certification Board estimates that there are slightly more than 40 Board Certified Behavior Analysts in Michigan, whereas Florida and Pennsylvania have 1,800 and 300, respectively.

Table 4 below illustrates a likely scenario in Michigan, following enactment of HB 4476/4183, and assumes that Michigan will develop sufficient service capacity within 5 years of implementation. The total premium effect estimated in Table 4 above will most likely be spread across several years.

**Table 4: Estimated Cumulative Effect of HB 4476/4183 on Rates**

<b>Year</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>TOTAL</b>
Low Est.	0.09%	0.18%	0.26%	0.35%	0.44%	<b>0.44%</b>
Mid Est.	<b>0.14%</b>	<b>0.29%</b>	<b>0.43%</b>	<b>0.58%</b>	<b>0.72%</b>	<b>0.72%</b>
High Est.	0.22%	0.43%	0.65%	0.86%	1.08%	<b>1.08%</b>

Texas provides a useful example to illustrate the incremental impact an autism insurance mandate is likely to have in states that lack a robust autism service provider market. While statewide data is not yet available to quantify the increased claims attributable to Texas' autism insurance law, data released by Aetna recently is instructive. According to Marc Lambright of the actuarial firm Oliver Wyman:

Aetna noted in December 2008 that it had tracked the cost of the autism mandate in Texas for its first year of existence and found that it increased costs for policyholders who filed autism-related claims by \$379 a month. A total of 235 policyholders had filed autism claims in the state as of the time the data was released. At that time, the company had not decided whether to pass those costs on to the policyholders because the cost of the mandate might change after the first year.<sup>22</sup> While this is only first year experience for a single insurer, it illustrates that initial mandate costs are likely low. Aetna's Texas block of business is quite large (approximately \$1.5 - 2.0 billion in premium<sup>3</sup>), so the statistics provided indicate a mandate cost of less than 0.1% of premium.<sup>22</sup>

This estimate is consistent with the lower band of our first-year cost estimate shown in Table 4 above, and is indicative of a developing service delivery market. Based on statistical data published by the Kaiser Family Foundation reporting average annual single and family policy rates

<sup>22</sup> Oliver Wyman (2009), *Actuarial Cost Estimate: Arkansas Senate Bill 913 – An Act to Provide Health Insurance Coverage for Autism Spectrum Disorders*, p. 6, citing Associated Press. *Lawmaker: Oklahoma autism bill has momentum*. December 4, 2008.

<<http://newsok.com/article/3327594>>. Accessed January 2009; and NAIC Annual Statements for 2007.

in 2008, single policy rates will likely experience an increase no greater \$2.82 per member per month (pmpm) and \$7.66 pmpm for family rates as a result mandating coverage as provided by the proposed legislation once an adequate provider network is established in Michigan.<sup>23</sup>

Assuming that the costs attributable to mandating autism coverage in Michigan will follow a trend similar to what was experienced in Texas, a mid range estimate of 0.14% for 5 years amounts to annual, cumulative increases of \$0.56 per member per month until the total increase of \$2.82 is realized in 2014.

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<sup>23</sup> As cited above, see the *Kaiser Family Foundation and Health Research and Educational Trust* publication, "Employer Health Benefits – 2008 Annual Survey," which reports that the average annual total premium cost for single coverage in the Midwest United States is \$4,723 and \$12,809 for family coverage.

**Section 3: Other State Cost Estimates Associated with Similar Legislation**

While a number of factors unique to individual states can influence the cost effect of legislation that is similar to HB 4476/4183, a review of cost estimate findings in states where similar legislation has been enacted, offered by proponents, opponents, and neutral sources, can reveal a useful trend to lawmakers in Michigan. During the past two years, several states have enacted legislation similar to HB 4476/4183, including South Carolina, Arizona, Florida, Louisiana, and Pennsylvania. Additionally, numerous other states with sophisticated mandate review processes have examined the likely cost effect resulting from mandating similar coverage. These states include Maryland, Virginia, and Oklahoma.

Due to differences in coverage criteria (e.g., ages of those covered and annual and lifetime limits), cost estimates in other states would not be directly comparable to Michigan's HB 4476/4183. The cost analyses completed for Pennsylvania, Maryland, and Virginia would be most instructive due to similar scopes of coverage. A consistent theme emerging from proponents, opponents, and independent sources, including nationally trusted actuarial firms such as Mercer, Aon, and Oliver Wyman, is that the likely cost of insuring the treatment of children with autism is relatively low, and is consistently reported to be at or below 1%. (See below).

**Table 5: Comparison of Eligibility, Spending Caps, and Costs for Autism Legislation**

State	Eligibility	Annual Cap	Lifetime Limit	Estimated % Premium Increase
<b>Arizona</b>	<16 years	\$50k to age 9; \$25K 10-16	None	0.3%-0.7%
Arkansas*	Not Specified	None	None	0.5%-0.6%
<b>Florida</b>	<18 years	\$36,000	\$200,000	0.3%-0.6%
Georgia*	Not Specified	\$55,000	None	0.6%
<b>Louisiana</b>	<17 years	\$36,000	\$144,000	0.3%-0.6%
Maryland*	<21 years	\$50,000	None	0.5%-1.2%
New Jersey*	Not Specified	None	None	1%
Oklahoma*	<21 years	\$75,000	None	0.3%-1%
<b>Pennsylvania</b>	<21 years	\$36,000	None	0.5%-1.1%
<b>South Carolina</b>	<16 years	\$50,000	None	1%
Virginia*	<21 years	\$36,000	None	0.6%
West Virginia*	<24 years	\$75,000	None	0.8%
Nationwide*				+/- 1%

\*Proposed; In Place

Source: Boudier & Hockenyos

**Conclusion**

Appropriate interventions with autistic children create measurable results. Based on our analysis of the impact of Michigan HB 4476/4183, we anticipate that its passage and implementation would create net benefits to society of approximately \$13.9 billion. Meanwhile, following our review of Michigan's commercial premium and claims data, we believe it is reasonable to conclude that the likely cost impact of this incremental expansion of the mandated coverage for the diagnosis and treatment of autism will be approximately 0.14% in the first year, and settle in the range of 0.44% to 1.08% within 5 years as a sufficient provider network is established to meet the demands for services. Furthermore, given the abundance of evidence concerning the efficacy of Applied Behavior Analysis in treating the varied symptoms of autism, the State of Michigan can expect significant future savings in avoided special education and human services costs. Lastly, expected premium and cost impacts relating to Michigan Autism Legislation are consistent with similar legislation enacted or pending in at least 10 other states.



**Exhibit A: Expenditures by Cohort****Cohort 1 - "Typical"****Direct Annual Medical Expenditures (\$2008)**

AGE	Physicians/ Dentists	Drugs	Alternative Therapy	Behavioral Interventions	ER/Hosp	Home Health	Travel	Total
3-7	\$1,342	\$172	\$232	\$38,030	\$969	\$546	\$95	\$41,386
8-12	\$675	\$179	\$128	\$4,719	\$899	\$355	\$82	\$7,036
13-17	\$509	\$153	\$59	\$4,071	\$692	\$312	\$70	\$5,866
18-22	\$498	\$151	\$39	\$1,467	\$997	\$154	\$61	\$3,368

**Direct Annual Non-Medical Expenditures (\$2008)**

AGE	Childcare	Adultcare	Respite Care	Home Improvement	Special Education	Supported Work	Other	Total
3-7	\$5,425	\$0	\$1,287	\$188	\$5,365	\$0	\$378	\$12,643

**Indirect Annual Losses Due to Reduced/Foregone Income (\$2008)**

AGE	Own	Parents/Caregiver	Totals
3-7	\$0	\$50,392	\$50,392

**Total Costs: \$603,448**

## Cohort 2 - "Improvement"

## Direct Annual Medical Expenditures (\$2008)

AGE	Physicians/ Dentists	Drugs	Alternative Therapy	Behavioral Interventions	ER/Hosp	Home Health	Travel	Total
3-7	\$1,342	\$172	\$232	\$38,030	\$969	\$546	\$95	\$41,386
8-12	\$675	\$179	\$128	\$4,719	\$899	\$355	\$82	\$7,036
13-17	\$509	\$153	\$59	\$4,071	\$692	\$312	\$70	\$5,866
18-22	\$498	\$151	\$39	\$1,467	\$997	\$154	\$61	\$3,368
23-27	\$580	\$145	\$33	\$0	\$906	\$124	\$53	\$1,841
28-32	\$593	\$133	\$29	\$0	\$798	\$102	\$46	\$1,701
33-37	\$640	\$115	\$25	\$0	\$700	\$109	\$39	\$1,626
38-42	\$632	\$98	\$21	\$0	\$611	\$105	\$34	\$1,501
43-47	\$892	\$84	\$19	\$0	\$498	\$160	\$29	\$1,683
48-52	\$989	\$71	\$16	\$0	\$412	\$180	\$25	\$1,693
53-57	\$996	\$61	\$14	\$0	\$342	\$76	\$21	\$1,509
58-62	\$948	\$51	\$12	\$0	\$378	\$16	\$19	\$1,424
63-66	\$740	\$40	\$11	\$0	\$352	\$46	\$16	\$1,204

## Direct Annual Non-Medical Expenditures (\$2008)

AGE	Childcare	Adultcare	Respite Care	Home Improvement	Special Education	Supported Work	Other	Total
3-7	\$5,425	\$0	\$1,287	\$188	\$5,365	\$0	\$378	\$12,643
8-12	\$4,679	\$0	\$1,109	\$163	\$12,102	\$0	\$325	\$18,379

## Indirect Annual Losses Due to Reduced/Foregone Income (\$2008)

AGE	Own	Parents/Caregiver	Totals
3-7	\$0	\$50,392	\$50,392
8-12	\$0	\$48,136	\$48,136
13-17	\$0	\$33,746	\$33,746
18-22	\$0	\$31,672	\$31,672
23-27	\$19,133	\$16,706	\$35,839
28-32	\$19,084	\$2,752	\$21,837
33-37	\$18,050	\$0	\$18,050
38-42	\$17,044	\$0	\$17,044
43-47	\$15,562	\$0	\$15,562
48-52	\$14,352	\$0	\$14,352
53-57	\$10,400	\$0	\$10,400

**Total Costs: \$1,926,790**

**Cohort 3 – “No Improvement”****Direct Annual Medical Expenditures (\$2008)**

AGE	Physicians/ Dentists	Drugs	Alternative Therapy	Behavioral Interventions	ER/Hosp	Home Health	Travel	Total
3-7	\$1,342	\$172	\$232	\$38,030	\$969	\$546	\$95	\$41,386
8-12	\$675	\$179	\$128	\$4,719	\$899	\$355	\$82	\$7,036
13-17	\$509	\$153	\$59	\$4,071	\$692	\$312	\$70	\$5,866
18-22	\$498	\$151	\$39	\$1,467	\$997	\$154	\$61	\$3,368
23-27	\$580	\$145	\$33	\$0	\$906	\$124	\$53	\$1,841
28-32	\$593	\$133	\$29	\$0	\$798	\$102	\$46	\$1,701
33-37	\$640	\$115	\$25	\$0	\$700	\$109	\$39	\$1,626
38-42	\$632	\$98	\$21	\$0	\$611	\$105	\$34	\$1,501
43-47	\$892	\$84	\$19	\$0	\$498	\$160	\$29	\$1,683
48-52	\$989	\$71	\$16	\$0	\$412	\$180	\$25	\$1,693
53-57	\$996	\$61	\$14	\$0	\$342	\$76	\$21	\$1,509
58-62	\$948	\$51	\$12	\$0	\$378	\$16	\$19	\$1,424
63-66	\$740	\$40	\$11	\$0	\$352	\$46	\$16	\$1,204

**Direct Annual Non-Medical Expenditures (\$2008)**

AGE	Childcare	Adultcare	Respite Care	Home Improvement	Special Education	Supported Work	Other	Total
3-7	\$5,425	\$0	\$1,287	\$188	\$5,365	\$0	\$378	\$12,643
8-12	\$4,679	\$0	\$1,109	\$163	\$12,102	\$0	\$325	\$18,379
13-17	\$4,037	\$0	\$957	\$140	\$10,440	\$0	\$281	\$15,855
18-22	\$3,402	\$0	\$826	\$12	\$7,310	\$0	\$996	\$12,545
23-27	\$0	\$29,328	\$0	\$11	\$0	\$978	\$1,907	\$32,224
28-32	\$0	\$25,298	\$0	\$9	\$0	\$844	\$1,645	\$27,796
33-37	\$0	\$21,823	\$0	\$8	\$0	\$728	\$1,419	\$23,978
38-42	\$0	\$18,824	\$0	\$7	\$0	\$628	\$1,224	\$20,683
43-47	\$0	\$16,238	\$0	\$6	\$0	\$542	\$1,057	\$17,842
48-52	\$0	\$14,006	\$0	\$5	\$0	\$467	\$910	\$15,388
53-57	\$0	\$12,083	\$0	\$5	\$0	\$341	\$786	\$13,214
58-62	\$0	\$10,422	\$0	\$4	\$0	\$0	\$677	\$11,103
63-66	\$0	\$8,686	\$0	\$4	\$0	\$0	\$565	\$9,254

**Indirect Annual Losses Due to Reduced/Foregone Income (\$2008)**

AGE	Own	Parents/Caregiver	Totals
3-7	\$0	\$50,392	\$50,392
8-12	\$0	\$48,136	\$48,136
13-17	\$0	\$44,994	\$44,994
18-22	\$0	\$42,229	\$42,229
23-27	\$38,266	\$22,274	\$60,540
28-32	\$38,169	\$3,669	\$41,838
33-37	\$36,100	\$0	\$36,100
38-42	\$34,088	\$0	\$34,088
43-47	\$31,125	\$0	\$31,125
48-52	\$28,704	\$0	\$28,704
53-57	\$20,800	\$0	\$20,800

**Total Costs: \$3,697,979**

**Cohort 4 – “No Intervention”****Direct Annual Medical Expenditures (\$2008)**

AGE	Physicians/ Dentists	Drugs	Alternative Therapy	Behavioral Interventions	ER/Hosp	Home Health	Travel	Total
3-7	\$1,342	\$172	\$0	\$0	\$969	\$546	\$0	\$2,483
8-12	\$675	\$179	\$0	\$0	\$899	\$355	\$0	\$1,753
13-17	\$509	\$153	\$0	\$0	\$692	\$312	\$0	\$1,354
18-22	\$498	\$151	\$0	\$0	\$997	\$154	\$0	\$1,646
23-27	\$580	\$145	\$0	\$0	\$906	\$124	\$0	\$1,631
28-32	\$593	\$133	\$0	\$0	\$798	\$102	\$0	\$1,525
33-37	\$640	\$115	\$0	\$0	\$700	\$109	\$0	\$1,454
38-42	\$632	\$98	\$0	\$0	\$611	\$105	\$0	\$1,341
43-47	\$892	\$84	\$0	\$0	\$498	\$160	\$0	\$1,474
48-52	\$989	\$71	\$0	\$0	\$412	\$180	\$0	\$1,472
53-57	\$996	\$61	\$0	\$0	\$342	\$76	\$0	\$1,398
58-62	\$948	\$51	\$0	\$0	\$378	\$16	\$0	\$1,377
63-66	\$740	\$40	\$0	\$0	\$352	\$46	\$0	\$1,131

**Direct Annual Non-Medical Expenditures (\$2008)**

AGE	Childcare	Adultcare	Respite Care	Home Improvement	Special Education	Supported Work	Other	Total
3-7	\$5,425	\$0	\$1,287	\$188	\$5,365	\$0	\$378	\$12,643
8-12	\$4,679	\$0	\$1,109	\$163	\$12,102	\$0	\$325	\$18,379
13-17	\$4,037	\$0	\$957	\$140	\$10,440	\$0	\$281	\$15,855
18-22	\$3,402	\$0	\$826	\$12	\$7,310	\$0	\$996	\$12,545
23-27	\$0	\$29,328	\$0	\$11	\$0	\$978	\$1,907	\$32,224
28-32	\$0	\$25,298	\$0	\$9	\$0	\$844	\$1,645	\$27,796
33-37	\$0	\$21,823	\$0	\$8	\$0	\$728	\$1,419	\$23,978
38-42	\$0	\$18,824	\$0	\$7	\$0	\$628	\$1,224	\$20,683
43-47	\$0	\$16,238	\$0	\$6	\$0	\$542	\$1,057	\$17,842
48-52	\$0	\$14,006	\$0	\$5	\$0	\$467	\$910	\$15,388
53-57	\$0	\$12,083	\$0	\$5	\$0	\$341	\$786	\$13,214
58-62	\$0	\$10,422	\$0	\$4	\$0	\$0	\$677	\$11,103
63-66	\$0	\$8,686	\$0	\$4	\$0	\$0	\$565	\$9,254

**Indirect Annual Losses Due to Reduced/Foregone Income (\$2008)**

AGE	Own	Parents/Caregiver	Totals
3-7	\$0	\$50,392	\$50,392
8-12	\$0	\$48,136	\$48,136
13-17	\$0	\$44,994	\$44,994
18-22	\$0	\$42,229	\$42,229
23-27	\$38,266	\$22,274	\$60,540
28-32	\$38,169	\$3,669	\$41,838
33-37	\$36,100	\$0	\$36,100
38-42	\$34,088	\$0	\$34,088
43-47	\$31,125	\$0	\$31,125
48-52	\$28,704	\$0	\$28,704
53-57	\$20,800	\$0	\$20,800

**Total Costs: \$3,439,065**

# Exhibit B: Forecasted Rate Impact of HB 4476/4183

James N. Boudier, MPA

Forecasted Rate Impact of Michigan House Bills 4476 & 4183 and Senate Bills 359 & 360 of 2009

	Medical Loss Ratio	\$ Cost	% Cost	\$ Cost + 10%	% Cost + 10%	% Cost w/ 10%
Low Estimate	87%	57,316,654	0.40%	63,048,540	0.44%	0.44%
Mid Estimate		93,026,588	0.65%	102,329,247	0.72%	0.72%
High Estimate		139,999,783	0.96%	153,999,761	1.06%	1.06%

Total Michigan Premiums Collected (Est. 2010)\* \$14,258,233,728

% of Population Covered by ERISA Plans \*\*\* 51.1%

% Population Covered by Non-ERISA Plans 48.9%

	Avg. Yr.	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate	PAID \$ Rate
Average Individual Policy \$	4,723	394	\$ 1.74	\$ 2.82	\$ 4.25	20.89	33.90	51.01	138.35
Average Family Policy \$	12,809	1,067	\$ 4.72	\$ 7.66	\$ 11.53	56.64	91.93		

NOTE: Source of average annual premiums from Kaiser Family Foundation "Employer Health Benefits - 2008 Annual Survey"

	Total Population by Age Band	Total Insured Population by Age Band	Total Full Insured Population by Age Band	ASD Treated Prevalence for Age Band Low	ASD Treated Prevalence for Age Band Mid	ASD Treated Prevalence for Age Band High	Cost per Treated Person Low	Cost per Treated Person Mid	Cost per Treated Person High	Total \$ Cost Low	Total \$ Cost Mid	Total \$ Cost High
Population Estimate (2010) **												
2 to 4 years	362,917	343,854	168,147	0.27%	0.35%	0.47%	30,000	36,000	40,000	13,619,930	21,186,557	31,611,688
5 to 9 years	664,169	596,424	291,651	0.35%	0.41%	0.54%	19,660	26,200	30,500	20,068,520	31,329,174	48,034,955
10 to 14 years	717,303	644,138	314,984	0.41%	0.53%	0.67%	6,758	9,000	12,000	8,727,501	15,024,714	25,324,876
15 to 19 years	745,908	669,825	327,545	0.41%	0.53%	0.67%	2,525	3,500	3,500	3,390,906	6,075,953	7,680,921
20 to 24 years	695,604	624,652	305,455	0.41%	0.53%	0.67%	2,525	3,500	3,500	3,182,223	5,666,191	7,162,920
25 to 29 years	254,572	228,605	111,788	0.41%	0.53%	0.67%	2,525	3,500	3,500	1,157,286	2,073,669	2,821,430
TOTAL AGE 2-26	3,460,473	3,107,505	1,519,570				50,126,365	61,353,257	81,353,257	122,436,592		

NOTE: Treated Prevalence and Per Capita Cost estimates for age bands derived from Annual Mandated Health Insurance Services Evaluation prepared for the Maryland Health Care Commission by Mercer re "Coverage for Autism Spectrum Disorder"

	Low (1:260)	Mid (1:210)	High (1:165)
Average Treated Prevalence Assumption	0.39%	0.48%	0.62%
Average Per Capita Expenditure	10,666	13,617	15,500
Number of Children (Treated Prevalence)	5,724	7,294	9,345
Number of Children (1 in 150)	10,181		

Iowa Uninsured Rate  
% Uninsured in Michigan (CYSHCN) \*\*\* 10.2%

## Sources

\* Source: Derived from Six-Year Rolling Average of data reported in 2001 through 2006 OFIS Annual Reports. Medical Loss Ratio calculated using 6-year Simple Average (2001 through 2006).

\*\* 10% assumption based on insurer testimony in other states with autism legislation pending. This administrative cost adder is a Year-One expense only.

\*\*\* United States Census Bureau <http://factfinder.census.gov/>

+ Source: <http://www.mps.ahrq.gov/mepsweb/data\_states/summ\_tables/nr/state/series\_2/2005/nk2b1.pdf>

++ Source: Catalyst Center State-at-a-Glance Chartbook on Coverage and Financing of Children and Youth with Special Health Care Needs (2007), p. 85

### Biosketches of Authors

**James N. Boudier** graduated from The Pennsylvania State University with a Master of Public Administration, with course concentrations in budgeting, fiscal decision-making, financial management, and accounting. He is currently the Chief Operating Officer of The Vista School® and The Vista Foundation®, which provide services to children living with autism in Central Pennsylvania, and serves as the Director of Collaboration and Development for the Central Pennsylvania Regional Autism Center.

In 2004, he served as the Chairman of the Pennsylvania Autism Task Force's Funding Streams Subcommittee and was the primary author of the Subcommittee's *Final Recommendations*. He is also a principal author of the Pennsylvania Autism Insurance Act, which has become a national model for autism coverage across the United States. In 2007, Mr. Boudier developed an accurate cost model for estimating premium increases associated with mandating private insurance coverage for treating Autism Spectrum Disorders. Since that time, he has completed cost analyses for autism insurance coverage legislation enacted in Pennsylvania, Louisiana, and Florida, has presented testimony before legislative bodies in four states, and has also provided volunteer cost analysis services for autism insurance legislation pending in six other states.

Mr. Boudier's work regarding the cost and benefit of private insurance coverage for autism diagnosis and treatment is published in the *Journal of Autism and Developmental Disorders* and the *Speaker's Journal* of the Pennsylvania House of Representatives.

**Jon Hockenyos** has had a life-long interest in economics and public policy. Following stints as an aide to a member of the British Parliament and work on a Senatorial campaign in his home state of Illinois, Mr. Hockenyos founded TXP while attending the LBJ School of Public Affairs at the University of Texas at Austin in 1987. Since then, TXP has successfully completed hundreds of projects for a wide variety of clients, with a strong record of on-time, on-budget delivery.

Along with serving as President of the firm, Mr. Hockenyos makes numerous public presentations and speeches, has served as a resource witness on a variety of issues for a large number of city councils, state legislatures, and the U.S. Congress, and is widely quoted by both print and electronic media.

Mr. Hockenyos received a Bachelor of Arts in Philosophy from the University of Illinois and Masters of Public Affairs from the LBJ School of Public Affairs, where he has taught as an Adjunct Professor. He also served on Board of Directors for Capital Metro (the Austin area transit authority), is the current President of the Board of Directors of Hyde Park Theatre in Austin, and is a member of the Advisory Board of American Bank of Commerce.